WHAT IS CLAIMED IS:

1. A laser-induced breakdown spectroscopy (LIBS) apparatus comprising:

a laser light source;

a detector; and

a probe for directing laser light from the laser light source to a sample *in vivo*; wherein the laser light is directable through the probe to a sample *in vivo* to generate an emission spectrum and said emission spectrum from said sample is capturable for a recording, a real-time analysis or a subsequent analysis.

2. The apparatus according to Claim 1, and further comprising a data acquisition or analysis system with optionally a separate data processor.

3. The apparatus according to Claim 1, in which the laser light is transmitted to the probe through a harmonic separator for directing laser light from the laser light source.

4. The apparatus according to Claim 1, further comprising a dichroic mirror for reflecting the laser light from the harmonic separator.

5. The apparatus according to Claim 1, further comprising a coupling lens for coupling the laser light at an input end of a multi-modal optical fiber.

6. The apparatus according to Claim 1, wherein the emission spectrum is collected either in the same fiber or in another fiber to travel in a backward direction to a spectrometer.

7. The apparatus according to Claim 1, wherein the laser light source is a CO_2 laser, a Ruby laser, a long-pulse YAG laser, an Alexandrite laser, an ER:YAG laser, an intense pulsed light laser, a KTP laser, a diode laser, or a pulse dye laser.

8. The apparatus according to Claim 1, wherein the laser light source is a pulsed Nd:YAG laser.

9. The apparatus according to Claim 1, wherein apparatus is part of a laser scalpel.

10. A laser-induced breakdown spectroscopy (LIBS) system comprising:

a laser light source;

a detector; and

a biological sample,

wherein the laser light is directable to the biological sample to generate an emission spectrum and said emission spectrum from said biological sample is capturable for a recording, a real-time analysis or a subsequent analysis.

11. The apparatus according to Claim 10, and further comprising a data acquisition or analysis system with optionally a separate data processor.

12. The apparatus according to Claim 10, in which the laser light is transmitted to the probe through a harmonic separator for directing laser light from the laser light source.

13. The apparatus according to Claim 10, further comprising a dichroic mirror for reflecting the laser light from the harmonic separator.

14. The apparatus according to Claim 10, further comprising a coupling lens for coupling the laser light at an input end of a multi-modal optical fiber.

15. The apparatus according to Claim 10, wherein the emission spectrum is collected either in the same fiber or in another fiber to travel in a backward direction to a spectrometer.

16. The apparatus according to Claim 10, wherein the laser light source is a CO_2 laser, a Ruby laser, a long-pulse YAG laser, an Alexandrite laser, an ER:YAG laser, an intense pulsed light laser, a KTP laser, a diode laser, or a pulse dye laser.

17. The apparatus according to Claim 10, wherein the laser light source is a pulsed Nd:YAG laser.

18. The apparatus according to Claim 10, wherein apparatus is part of a laser scalpel.

19. A method of using a laser-induced breakdown spectroscopy (LIBS) system, said method comprising:

directing laser light from a laser light source to a biological sample,

generating an emission spectrum from the biological sample,

detecting the emission spectrum, and

capturing the emission spectrum for a recording, a real-time analysis or a subsequent analysis.

20. The method according to Claim 19, and further comprising:

comparing the emission spectrum with a control emission spectrum to determine the presence or absence of health of a host organism from which the biological sample is obtained.

21. The method according to Claim 19, and further comprising:

analyzing the emission spectrum to determine the presence or absence of at least one trace element.

22. The method according to Claim 19, and further comprising:

analyzing the emission spectrum to determine the quantity of at least one trace element.

23. The method according to Claim 19, and further comprising:

evaluating the light emitted from the sample by calculating the concentration of at least one chemical element from a sample;

comparing the concentration of the chemical element in the sample with a range of concentrations of the chemical element in a standard; and

classifying the sample as normal or abnormal.

24. The method according to Claim 19, and further comprising:

directing the laser light through a probe onto the sample *in vivo*.

25. The method according to Claim 19, wherein the sample is selected from the group consisting of: blood, nail, hair, tissue or biological fluid.

26. The method according to Claim 19, wherein the sample source is a human, an animal or a plant, or a combination thereof.

27. The method according to Claim 19, wherein the method is practiced to detect cancer.

28. The method according to Claim 19, wherein the method is practiced to detect breast cancer.

29. The method according to Claim 19, wherein the method is practiced to detect or diagnose a disease or disorder.

30. The method according to Claim 19, wherein the method is practiced in a forensic analysis.

31. The method according to Claim 19, wherein the method is practiced utilizing a laser scalpel.